

**REMARKS**

In response to the Office Action mailed 11 January 2006, the Applicant respectfully requests the Examiner to reconsider the above-captioned application in view of the above amendments and the following comments. This amendment is made to accompany a Request for Continued Examination under 37 C.F.R. 1.114, which the Applicant hereby requests.

Claims 1-11 were previously pending in this application. The Examiner has rejected all of the pending Claims. With the above amendment, the Applicant has amended Claims 1 and 3 and canceled Claim 2. With these amendments, Claims 1 and 3-11 are pending. The Applicant believes that all of the Examiner's rejections have been addressed (as will be discussed further below). Reconsideration of this claim set as amended is respectfully requested.

**Rejections under 35 U.S.C. §102**

The Applicants have amended Claim 1 to include all subject matter originally presented in Claim 2 as filed, Claim 2 having been dependent off of Claim 1 and reciting additional limitations over those recited in Claim 1 as originally filed. All remaining pending claims in this case depend from Claim 1 as amended. Because all claims now include all limitations originally presented in Claim 2 as filed, rejections previously made by the Examiner that applied to Claim 1 as originally filed, but not to Claim 2 are inapplicable to the claims as currently amended.

Specifically, the rejection of Claims 1 and 6-11 under 35 U.S.C. §102(b) as anticipated by U.S. Patent Number 6,062,018 to Bussing is inapplicable because Claim 1 as amended includes the limitations of originally filed Claim 2, which was not part of this rejection.

Similarly, the rejection of Claims 1 and 6-11 under 35 U.S.C. §102(e) as anticipated by U.S. Patent Publication 2005/0019620 by Schick et al. is inapplicable because Claim 1 as amended includes the limitations of originally filed Claim 2, which was not part of this rejection.

**Rejections under 35 U.S.C. §103**

The Examiner has rejected previously pending Claims 1-11 as unpatentable over the combination of U.S. Patent Number 6,062,018 to Bussing and one of the following references: the Cooper paper, the Russian 2034996C abstract, U.S. Patent 5,847,353 to Titus et al., the Ma et al paper, and U.S. patent 4,287,377 to Maslin et al. In each case, the Bussing reference is the primary reference. The Applicants respectfully traverse these rejections as applied to the amended claims for the reasons discussed below.

In particular, the Applicants note that the Examiner has stated that Bussing shows the elements of: a power system having a fuel preconditioner, represented by predetonator 472, a pulse detonation combustor 104, and a turbine 4. In response to previous arguments by the Applicants that the predetonator is not a fuel preconditioner as described and claimed by the Applicants, the Examiner stated that detonative combustion occurs in the predetonator 472 of the Bussing reference (also referred to in the reference as a "pre-detonation chamber"), and that "combustion in the predetonator will inherently form fuels that are preconditioned prior to entering the pulse detonation combustor."

The Applicant notes that the Bussing reference itself states, beginning at Column 7, line 45: "A pre-detonation tube must be filled with a highly detonable mixture (e.g., hydrogen/oxygen) in which a detonation can be generated either directly or through a short DDT process." At Column 7, line 51, Bussing states: "The detonation wave produced in the well-confined pre-detonation tube mixture can then be used to directly initiate detonation in the primary combustor." Such a multi-stage initiation of detonation in the primary combustor is distinct and different from a fuel preconditioner, and the claimed process of fuel pre-conditioning does not occur in the system taught in the Bussing reference.

The Applicants describe a fuel preconditioner as "converting a fuel to at least one conditioned fuel, that is a more detonable fuel." (See paragraph 0023 of Applicants' specification.) The Applicants' specification further explains that this process is intended to improve the detonability of the fuel to be detonated in the primary combustion chamber by comparison to the fuel that is sent to the preconditioner. See, for example, paragraph 0023 of the Applicants' specification ("the conditioned fuel from the fuel preconditioner 20 is used to enhance the detonability of the heavier primary fuel"). This

is done specifically so that detonation of fuels that would otherwise be difficult or impossible to detonate can be achieved through the conditioning of that fuel.

By contrast, the predetonator of Bussing is specifically intended to produce a detonation directly, using the fuel placed into it, before any further conditioning. This is why the Bussing predetonator requires being filled with a highly detonable mixture. Unlike the preconditioner of the invention claimed in amended Claim 1, which recites in part "the fuel preconditioner being adapted to convert a fuel to at least one conditioned fuel", the predetonator of Bussing requires such highly detonable fuel *as input*, rather than providing it as output.

In short, the predetonator of the Bussing reference is not a fuel preconditioner, because according to the words of the Bussing reference itself, such a predetonator requires highly detonable fuel as input. By such a requirement that the input fuel to the predetonator is highly detonable, Bussing effectively disclaims the possibility that such a predetonation tube is a "fuel preconditioner being adapted to convert a fuel to at least one conditioned fuel" as recited in Claim 1.

Because such an element of preconditioning of fuel is not present in Bussing, the Bussing reference fails to illustrate an essential element recited in Claim 1 as amended, i.e., the fuel preconditioner. Although the Examiner has cited other references that discuss the process of conditioning fuel, without the suggestion in the Bussing reference that such preconditioning is part of the system, there is no specific motivation to combine the various references cited.

The Applicants acknowledge that various forms of fuel preconditioning were known in the art; however, the Examiner has provided no basis for the combination of fuel preconditioning with the type of pulse detonation combustion system claimed in Claim 1 as amended. The only motivation for such combinations comes from the Applicants' own specification. As a result, the combination of references is improper, and Applicants request that the rejections based upon the combination of Bussing and the various references discussing fuel preconditioning therefore be withdrawn.

In view of the above, Applicants respectfully submit that Claim 1 is patentable over the cited art, either alone or in combination. Further, as claims 3-11 depend from claim 1, these claims are also patentable over the cited art for at least these reasons.

Accordingly, Applicants respectfully request that the rejections of Claims 1 and 3-11 under 35 USC 103(a), over Bussing in view of either Cooper et al. or Russian Abstract 2034996C and optionally in further view of Titus, be withdrawn, as well as the rejection of the same claims under 35 USC 103(a) over Bussing, in view of Ma et al. and Maslin, and optionally in further view of Titus.

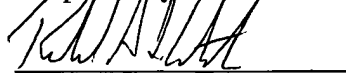
### **CONCLUSION**

In view of the foregoing, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

**Please charge all applicable fees associated with the submittal of this Amendment and any other fees applicable to this application to the Assignee's Deposit Account No. 07-0868.**

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,



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